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**Notice of Allowability**

Application No.

10/743,247

Applicant(s)

TAN ET AL.

Examiner

Pamela E. Perkins

Art Unit

2822

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 4 November 2005.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### **DETAILED ACTION**

This office action is in response to the filing of the amendment on 4 November 2005. Claims 1-24 are pending.

#### ***Response to Arguments***

Applicant's arguments, see the paper filed 4 November 2005, with respect to claims 1-24 have been fully considered and are persuasive. The rejection of claim 1-24 has been withdrawn.

#### ***Allowable Subject Matter***

Claims 1-24 are allowed.

#### ***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance: prior art does not anticipate, teach, or suggest a method for forming an amorphous shallow implant region that getters defects form a pocket implantation including: a) providing a gate structure, on a substrate comprised with a first conductivity type dopant; the substrate comprised of an upper crystalline section; b) performing a pocket amorphizing implantation procedure to implant ion of a first conductivity type to form a pocket implant region adjacent to the gate structure, and an amorphous pocket region; (1) the amorphous pocket region is formed at a first depth below the substrate surface; c) performing a shallow amorphizing implant to form an amorphous shallow implant region;

Art Unit: 2822

(1) the amorphous shallow implant region being formed at a second depth above the amorphous pocket region; d) performing an anneal procedure to recrystallize the amorphous shallow implant region and the amorphous pocket region, whereby the amorphous shallow implant region reduces defects formed by the pocket amorphizing implant.

For example, Krishnan et al. (6,399,452) disclose a method for forming a pocket implantation regions including providing a gate structure, on a substrate; performing a pocket amorphizing implantation procedure to implant ions to form a pocket implant region adjacent to the gate structure; the amorphous pocket region is formed at a first depth below the substrate surface; and annealing the region. However, Krishnan et al. do not disclose, anticipate, teach, or suggest performing a shallow amorphizing implant to form an amorphous shallow implant region; the amorphous shallow implant region being formed at a second depth above the amorphous pocket region.

Yu (6,630,385) discloses a method for forming an amorphous shallow implant region including providing a gate structure, on a substrate; and performing an anneal procedure to recrystallize the amorphous shallow implant region. However, Yu does not disclose, anticipate, teach or suggest performing a pocket amorphizing implantation procedure to implant ion of a first conductivity type to form a pocket implant region adjacent to the gate structure, and an amorphous pocket region.

Feudel et al. (6,846,708) disclose a method for forming a pocket implantation regions including providing a gate structure, on a substrate; performing a pocket amorphizing implantation procedure to implant ions to form a pocket implant region

Art Unit: 2822

adjacent to the gate structure; the amorphous pocket region is formed at a first depth below the substrate surface; and annealing the region (col. 7, line 30 thru col. 8, line 57). However, Fendel et al. do not disclose, anticipate, teach or suggest performing a shallow amorphizing implant to form an amorphous shallow implant region; the amorphous shallow implant region being formed at a second depth above the amorphous pocket region.

The prior art made of record in this action does not anticipate, teach, or suggest performing a pocket amorphizing implantation procedure to implant ion of a first conductivity type to form a pocket implant region adjacent to the gate structure, and an amorphous pocket region; (1) the amorphous pocket region is formed at a first depth below the substrate surface; and performing a shallow amorphizing implant to form an amorphous shallow implant region; (1) the amorphous shallow implant region being formed at a second depth above the amorphous pocket region.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pamela E. Perkins whose telephone number is (571)


Art Unit: 2822

272-1840. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PEP

  
Zandra V. Smith  
Supervisory Patent Examiner  
23 Jan, 2006